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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,709	05/23/2001	Pierre Dobrovolny	7096 CIP	1492

7590 02/03/2005
Zenith Electronics Corporation
2000 Millbrook Drive
Lincolnshire, IL 60069

EXAMINER

NGUYEN, DUC M

ART UNIT	PAPER NUMBER
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2685

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,709

Applicant(s)

DOBROVOLNY, PIERRE

Examiner

Duc M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/1/04 (telephone interview).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 is/are allowed.
- 6) ☒ Claim(s) 12-15 is/are rejected.
- 7) ☒ Claim(s) 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>11/13/04</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/23/01</u> . | 6) <input type="checkbox"/> Other: _____. |

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DETAILED ACTION

This action is in response to the telephone conversation conducted on 11/1/04. Claims 1-18 are now pending in the present application.

Election/Restriction

1. Applicant's election without traverse of group II (claims 12-18) in the reply filed on 4/20/04 (lost fax) and in the telephone interview conducted on 11/1/04 is acknowledged. The copy of the correspondent receipt of the reply has been received and has been placed of record in the file. Accordingly, claims 1-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the telephone interview conducted on 11/1/04.

Information Disclosure Statement

1. The references listed in the information disclosure statements submitted on 5/23/01 has been considered by the examiner (see attached PTO-1449).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **12, 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dobrovolny** (US 5,280,648) in view of **Milligan et al** (US 4,063,176).

Regarding claim **12**, Dobrovolny discloses a wideband RF double balanced mixer circuit comprising :

- a source of symmetrical LO signal (see Fig. 1, and col. 2, lines 65-68);
- a switching circuit controlled by said LO (see Fig. 2 and col. 3, lines 20-25);
- a source of RF signal (see Figs. 1-2);

Here, although Dobrovolny is silent on the printed circuit board and the narrow band of the IF signal, it is noted that the narrow band response of the IF signal is obviously occurred in mixers as disclosed by Milligan (see col. 1, 14-30). Therefore, it would have been obvious that the mixer circuit as disclosed by Dobrovolny would obviously produce a narrow band IF signal as claimed due to the limited frequency response of the switching circuit. Further, it would have been obvious to implement the mixer circuit in a printed circuit board (PCB) circuit as disclosed by Milligan (see Fig. 2-3, 7), for utilizing advantages of PCB such as reducing in size, I/O interfaces, and lower operating power requirement. Therefore, it would have been obvious to one skilled in the art to provide the above Milligan's teaching to Dobrovolny for providing a mixer with PCB as claimed, for improving the performance of the mixer circuit.

Regarding claim **14** , the claim is rejected for the same reason as set forth in claim 12 above. In addition, Dobrovolny discloses switches and terminals as claimed (see Fig. 1, refs. 22, 26).

Regarding claim **15**, the claim is rejected for the same reason as set forth in claim 14 above. In addition, Dobrovolny discloses MESFET devices as claimed (see Fig. 1, refs. 22, 26).

3. Claim **13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Dobrovolny** in view of **Milligan** and further in view of **Freed** (US 6,009,319).

Regarding claim **13**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, Dobrovolny discloses series tuned elements for the IF signal (see Fig. 1, refs. 20, 24). However, Dobrovolny fails to disclose parallel tuned element exhibiting wideband response for the RF. However, Freed discloses an adjustable balun circuit, wherein either parallel tuned elements (see Fig. 9) or series tuned elements (see Fig. 8) can be used for changing the frequency of an output signal (see col. 4, lines 47 – 59). Since Dobrovolny's mixer is directed to a cable TV mixer (see col. 1, lines 14-16), which is designed to receive wideband RF signals as broad as possible, it would have been obvious to one skilled in the art to incorporate Freed's teaching to Dobrovolny for providing a balun circuit comprising parallel tuned elements as claimed, for increasing the wideband response the mixer circuit, for enhancing the reception frequency range of the mixer.

Allowable Subject Matter

4. Claims 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claim 18 is allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: As to claims 16, 18, the cited prior art fails to disclose or make it obvious a method or apparatus for a double balanced mixer which comprises components as recited in the claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tzuang et al (5,930,696), Broadband low-noise low-intermodulation receiver.

Petrovic (US 6,215,374), Magneticcally coupled resonators for achieving low cost narrow band pass filters having high selectivity, low insertion loss and improved out-of-band rejection.

Watanabe (US 6118,992), Mixer circuit in CATV up/down converter.

Kosuga (US 5,140,705), Center-tapped coil-based RF tank circuit for a balanced mixer circuit.

Wollesen (US 3,727,078), Integrated circuit balanced mixer apparatus.

Anderson (combined crystal and LC filter.

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Tanbakuchi (US 5,553,319), Routing YIG-tuned mixer.

Voinigescu et al (US 6,002,860), High frequency noise and impedance matched integrated circuits.

8. Any response to this action should be mailed to:

Commissioner of Patent and Trademarks

Washington, D.C. 20231

or faxed to:

703-872-9314 (for formal communications intended for entry)

(for informal or draft communications, please label PROPOSED or DRAFT)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

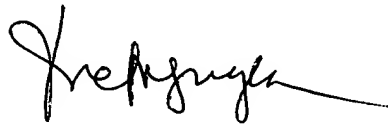
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc M. Nguyen whose telephone number is 703-306-4531. The examiner can normally be reached on Monday-Thursday (9:30 AM – 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 703-305-4385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Duc M. Nguyen

A handwritten signature in black ink, appearing to read 'Duc M. Nguyen', with a long horizontal flourish extending to the right.

Nov 12, 2004